SECTION 07 2100

THERMAL INSULATION

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LANL MASTER SPECIFICATION

When editing to suit project, author shall add job-specific requirements and delete only those portions that in no way apply to the activity (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the ESM Architectural POC.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within “stars” during editing.

Specification developed for ML-3 projects. For ML-1 / ML-2, additional requirements and QA reviews are required.

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PART 1 GENERAL

1.1 SECTION INCLUDES:

A. All insulation in the Work, except that specified in Sections 07 5316, Chlorosulfonate-Polyethylene Roofing and 09 2116, Gypsum Board Systems

1. Furnishing and installation of batt insulation and vapor barrier for exterior wall construction.

2. Batt insulation for filling perimeter window and door shim spaces.

3. Building board insulation for foundation perimeter and under concrete slabs.

4. Building board insulation for furred exterior masonry walls.

1.2 RELATED SECTIONS

A. Section 07270, Firestopping.

1.3 REFERENCES

A. Codes and Standards: Comply with the following codes and standards including current editions, revisions and supplements.

B. ASTM C578-92, Specification for Rigid, Cellular Polystyrene Thermal Insulation.

C. ASTM C726-93, Specification for Mineral Fiber Roof Insulation Board.

D. ASTM C665, Insulation Blankets, Thermal (Mineral Fiber for Ambient Temperatures).

E. ASTM C578, Insulation Board, Thermal (Polystyrene).

F. ASTM C612, Insulation, Blankets, Thermal (Mineral Fiber, Industrial Type).

G. EPA (Environmental Protection Agency) CPA (Comprehensive Procurement Guideline), (http://www.epa.gov/cpg)

1.4 SUBMITTALS

A. Submit the following in accordance with Section 01 3300, Submittal Procedures:

1. Submit product data for [approval], [information] including manufacturer's specifications and installation instructions.

2. Certification that percentage of recovered materials will be at least equal to amount specified in Part 2 for applicable material.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store insulation and materials in dry areas where possible and in manufacturer's original containers or bundles. Protect from becoming wet when not stored in dry areas.

B. Protect vapor barrier or insulation from damage.

PART 2 PRODUCTS

2.1 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Comply with Section 01 2500, Substitution Procedures

2.2 MATERIALS

A. Provide batt insulation conforming to ASTM C665, Type III, Class A; preformed glass fiber batt or roll; with foil reinforced kraft covering one side for wall and roofs, with the following properties:

Flame spread	25 or less in accordance with ASTM E84
Smoke development	50 or less in accordance with ASTM E84

Thermal resistance	[3 1/2 inch thick = R11] [6 1/4 inch thick = R29] [9 1/2 inch thick = R30] in accordance with ASTM C518
Recovered material	Minimum recovered (recycled) material content 20-25 percent in accordance with EPA's CPG.

B. Provide polystyrene board insulation conforming to ASTM C578, Type IV; extruded cellular type, with the following properties:

Thermal resistance	Minimum R value of 5.0 per inch of thickness, at 75 degrees F mean temperature.
Thickness	As indicated on the Drawings
Compressive strength	Minimum 25 psi
Water absorption	In accordance with ASTM C272, maximum 0.3 percent by volume.

C. Provide glass fiber insulation conforming to ASTM C665, Type III, Class A; foil faced semirigid type, with the following properties.

Flame spread	25 or less in accordance with ASTM E84
Thermal resistance	Minimum R value of 6.5 for 1 1/2 inches
Recovered material	Minimum recovered (recycled) material content 20-25 percent in accordance with EPA's CPG.

D. Sheet Barrier: Black polyethylene film for above grade application, 6 mil thick.

E. Staples: Steel wire; galvanized; type and size to suit application.

F. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inches wide.

G. Wire Mesh: Galvanized steel, hexagonal wire mesh.

H. Adhesive: Type recommended by insulation manufacturer.

2.3 MANUFACTURERS

A. Board insulation

1. Dow Chemical U.S.A.
2. Johns Manville.
3. Owen Corning

B. Batt insulation

1. Certain Teed Corp.

2. Knauf Fiber Glass GmbH

3. Owens-Corning Fiberglas Corp.

PART 3 EXECUTION

3.1 INSPECTION

A. Board insulation

1. Verify that substrate, adjacent materials and insulation boards are clean, dry and ready to receive adhesive and installation.

2. Verify that substrate surface is flat, free of honeycomb, fins, irregularities and substance that may impede adhesive bond.

B. Batt insulation

1. Verify that adjacent materials are dry and ready to receive installation of insulation.

2. Verify mechanical and electrical services within walls have been installed and tested.

3.2 PROTECTION

A. Prevent insulation from becoming wet prior to covering.

B. Prevent insulation from being displaced or damaged while placing vapor barrier and slab.

C. Apply insulation protective covering to prevent damage by gravel and backfill at walls.

3.3 INSTALLATION

A. Install insulation and vapor barrier in accordance with the manufacturer's instructions.

B. Install where indicated on the drawings, without gaps or voids.

C. Trim insulation neatly to fit spaces.

D. Fit insulation tight in spaces and to exterior side of mechanical and electrical services within the plane of insulation.

E. Wood Framing: Place vapor and air barrier on warm side of insulation. Staple flanges to sides of the studs 6 inches on center.

F. Metal Framing: Place vapor and air barrier on warm side of insulation.

G. Secure insulation in place with wire mesh secured to framing members where shown on the drawings for ceiling insulation. Tape tears or cuts in barrier.

H. Extend vapor and air barrier tight to full perimeter of adjacent window and door frames and other items interrupting the plane of membrane. Tape in place.

I. Adhere boards to foundation wall perimeter, horizontally. Place boards in a method to maximize contact bedding. Stagger end joints. Butt edges and ends tight to adjacent board and to protrusions.

J. Place insulation under slabs on grade after base for slab has been compacted.

K. Stuff loose insulation into miscellaneous voids and cavities. Compact insulation to no less than 75 percent of it normal volume.

L. Install batts, friction fit, in wall and roof cavities without gaps or voids.

END OF SECTION

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Do not delete the following reference information:

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FOR LANL USE ONLY

This project specification is based on LANL Master Specification 07 2100 Rev. 0, dated January 6, 2006.